

# Everybody Wins: Hospital Supply Chain Partnerships with Significant Returns

**Healthcare  
Performance Partners**  
A Vizient™ Company

# Hospital Supply Chain Partnerships with Significant Returns

by Aaron Fausz, Ph.D.

## Summary

Denver Health has been pursuing continuous improvement for over a decade. In that time they have achieved many customer-focused improvements and have become an efficient, high quality health care system that serves as a model for other institutions across the nation. As Denver Health's culture evolved into that of a Lean organization, the executives acknowledged that the hospital was just one part of a more complex supply chain and that focus should be extended outward to include suppliers in bidirectional improvement efforts. Key leaders at Denver Health sought to achieve mutually beneficial, long-term partnerships with key suppliers that went beyond simple cost reduction. The benefits from Denver Health's supplier partnerships have been significant, and have gone far beyond the obvious tangible measures of cost savings, reduced price discrepancies, fewer transactional errors, better product flow, and improved quality. The intangible benefits—such as increased trust and confidence and improved business relationships—have surpassed everyone's expectations.

## Background

A comprehensive provider of level one care for everyone, regardless of ability to pay, Denver Health provides health care to twenty-five percent of all Denver residents (approximately 150,000 individuals) and to one in three children in the Denver area. As Colorado's primary safety net institution, Denver Health has provided billions of dollars in uncompensated care, so being as efficient and effective as possible is paramount to fulfilling their mission of providing access to the highest quality health care for all and making Denver the healthiest community in the United States.

Denver Health's Lean journey initially focused on creating a solid financial foundation upon which their many services to the Rocky Mountain region could be sustained and expanded. As more staff were trained in Lean tools and methods, and as improvements spread across the organization, Denver Health's focus broadened to include the underlying management systems that drive the hospital. These management systems included connecting improvement efforts with strategy and the organization's guiding pillars, adopting visual management boards to make performance on key metrics visible to all staff, empowering staff to use daily management boards to track day-to-day activities needed to achieve long-term performance improvement, and creating an interlocking accountability for leaders at all levels to reinforce ongoing improvement and coaching staff towards patient focused care.

## Denver Health's Foray into Supplier Partnerships

As Denver Health's culture evolved into that of a Lean organization, the executives acknowledged that the hospital was just one part of a more complex supply chain and that focus should be extended outward to include suppliers in bidirectional improvement efforts. The term customer-supplier partnership has been used loosely over the years, and it often has a narrow connotation that suppliers will simply keep lowering their prices in order to reduce hospitals' costs. Denver Health's CEO, Art Gonzalez, and CFO, Peg Burnette, as well as the director of materials management, Phil Pettigrew, were of the mind-set that suppliers were an extension of their hospital, and sought to achieve mutually beneficial, long-term partnerships with key suppliers that went beyond simple cost reduction. In fact, they viewed supplier partnership in terms of a shared value chain with patients.

Denver Health approached their high-leverage suppliers and proposed partnering relationships with the goal of improving quality and reducing waste within both the supplier and customer organizations. High-leverage suppliers were prioritized by spend and volume as well as the suppliers' focus on quality improvement, prevention of defects, willingness to share performance data, willingness to focus on supply chain economics, and willingness to collaborate in:

- Jointly defining needs and creatively solving problems
- Sharing information and providing assistance
- Performing regular business reviews
- Lowering total supply chain costs
- Optimizing value chain efficiency
- Improving quality

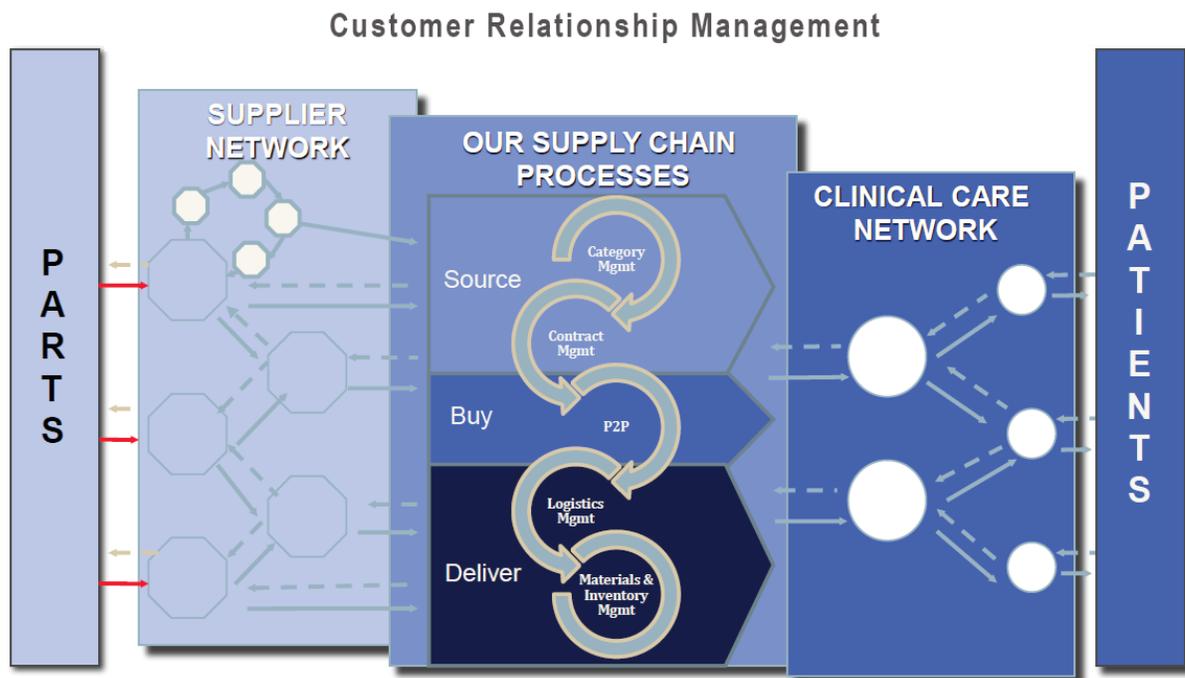


Image Source: Intermountain Healthcare

The organizations chosen for the first phase of their partnership efforts included two distributors and three direct suppliers. Denver Health's intent was to start small, achieve some mutually beneficial wins, and expand from there in successive phases.

With a mutual desire to move up the relationship continuum as far as possible, Denver Health and the supplier partners agreed to work together to:

- Streamline the system for the acquisition and flow of products and services
- Align incentives and strategic plans to form the basis for joint problem solving
- Tap into the innovative potential of the suppliers' R&D departments, along with Denver Health's clinicians and supply chain professionals, to improve reliability, reduce cost, improve outcomes, and enhance quality
- Create a framework for lasting partnerships

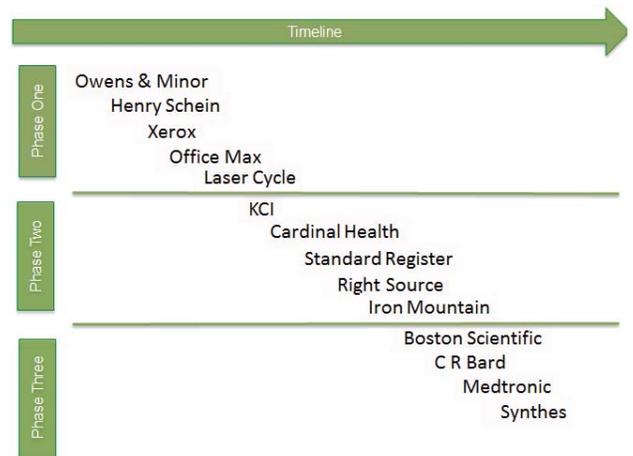


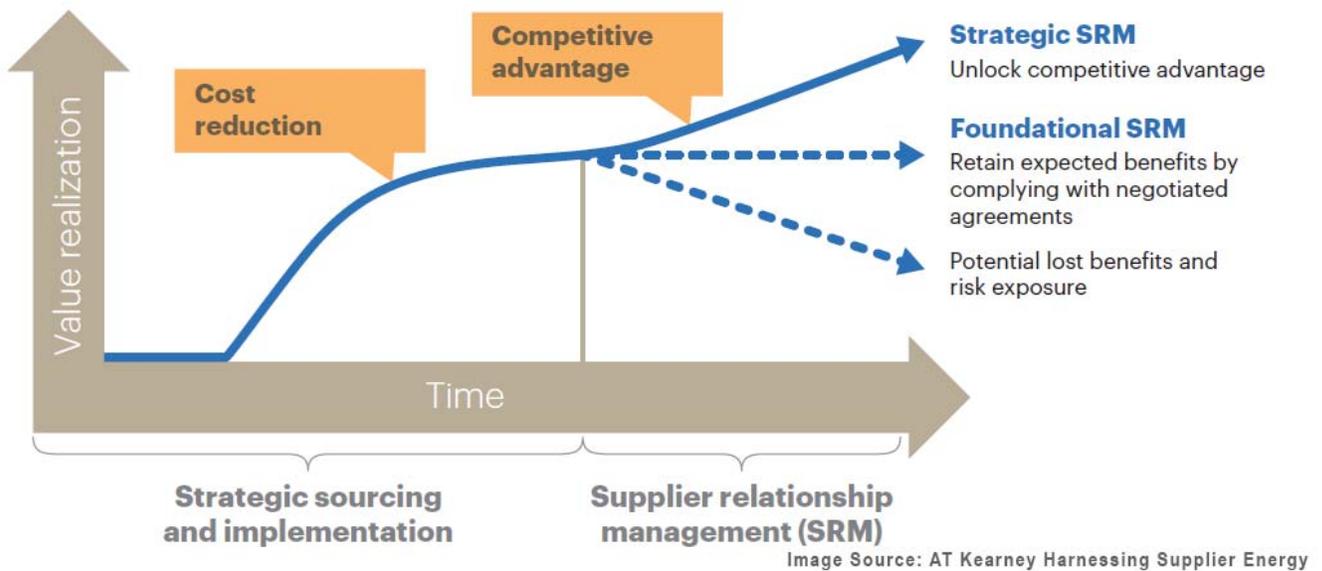
Image Source: Intermountain Healthcare

## Getting Started

To get things started, Denver Health invited representatives from each partner to enroll in quality improvement courses through the Denver Health Lean Academy—a partnership with Healthcare Performance Partners (HPP) to deliver state-of-the-art, comprehensive training focused on Lean methodology and practices in healthcare. It was believed such learning would provide a common language and understanding regarding improvement. Denver Health also invited each supplier partner to come onsite and see the process ordering flow, the inventory situation, the flow of supplies in several departments, as well as the overall flow and use of their products within Denver Health. The suppliers

reciprocated by inviting representatives from Denver Health to visit their organizations to see their order processing and fulfillment flow, delivery capabilities, R&D, and clinical resources. With a better understanding of each other's business, mutual inter-organizational priorities and goals were also set.

The underlying belief for Denver Health and each supplier partner was that collaboration would unlock value for both partners. This value includes not only improved acquisition and flow of products and services, but also more effective use of the products and services purchased.



To assess the value achieved and ensure ongoing improvement, a performance scorecard for each partnership was agreed upon and a quarterly review process was put into place. The quarterly reviews provide an opportunity for both partners to regularly review performance, discuss issues and opportunities, plan next steps, and determine how to most effectively spread the learning within and between the respective organizations. The scorecard categories and targets included:



## Initiatives Undertaken

Since the inception of these supplier partnerships, many innovative steps have been undertaken to achieve mutually beneficial, long-term improvements. The types of actions taken by both Denver Health and their supplier partners have included:

- Creating standard work using best practices
- Better management of risk factors
- Channel optimization
- Product standardization
- Automation
- Error reduction
- Philanthropic benefits

## Benefits

The benefits from Denver Health's supplier partnerships have been significant and have gone far beyond the obvious tangible measures of cost savings, reduced price discrepancies, fewer transactional errors, better product flow and improved quality. The intangible benefits—such as increased trust and confidence as well as better business relationships—have surpassed everyone's expectations. One example is an agreement between Denver Health and Owens & Minor to jointly sponsor internships for college students majoring in supply chain management at the Leeds School of Business at the University of Colorado. Creating a pipeline to encourage talented and interested young people to enter the profession was deemed essential for both organizations. Plus, it helped forge a stronger bond between these organizations and the University of Colorado. The interns split their time between both organizations, thus enabling them to see health care

supply chain from the supplier's standpoint (Owens & Minor – distribution, warehousing, interactions with manufacturers) as well as from the customer's standpoint (Denver Health - purchasing, contracting, receiving, distribution, central supply, tech systems/IS). This experience has augmented their classroom education by allowing the interns to see healthcare from different perspectives, more fully appreciate the complexities of the healthcare system, and to bring fresh eyes toward improvement.

For the initial academic year, two interns were brought into the partner organizations, and both have made a lasting impact towards ongoing improvement at both Denver Health and Owens & Minor. One student focused on supply chain, and helped pilot test a Kanban two-bin system for the Medical Intensive Care Unit (MICU) at Denver Health. The pilot worked well and has proven to be so effective in ensuring the right supplies are available at the right place and right time that it is now being rolled out across the entire hospital. The second intern, a student in data analytics, combined performance dashboards for suppliers and buyers. These dashboards proved to be effective tools for displaying key performance indicators, as well as helping the partner teams focus on the metrics and best practices that led to root-cause analysis and countermeasures.

## Conclusion

The supplier partner effort has required significant time and effort as well as a strong commitment by the executives and materials management professionals at Denver Health and its supplier partners. Like any relationship, supplier partnerships require ongoing care and feeding. Mutual respect and understanding, a two-way flow of information, and listening are critical for sustaining a partnership - as is the alignment between the organizations on the value of the relationship, business ethics, standards of excellence, and commitment to continuous improvement. The efforts by Denver Health and its supplier partners have been a win for everyone, especially the Denver community. Because of their ongoing commitment to become Lean organizations, Denver Health and its supplier partners have become an efficient, high-quality health care system that serves as a model for other institutions across the nation.

# Detailed Dive Owens & Minor: Supply Chain Optimization

Owens & Minor (O&M) is Denver Health's largest and highest volume supplier, accounting for over \$13 million in annual spend. With a goal of being a world class provider of supply chain management solutions to the healthcare industry, as well as a focus on continual improvement, O&M was very open to a partnership with Denver Health. Recognizing a need to reduce transactional errors and improve transaction efficiencies, both organizations set out to develop a set of metrics across the supply chain that could be used to identify, track and measure performance as well as to identify specific actions the partners could take together to eliminate waste and create the perfect supply chain.

Using a supply chain optimization product available to the industry at no charge through the Strategic Marketplace Initiative (<http://www.smisupplychain.com>), the two partners agreed on six "pillars" or business processes, each representing a critical component for operating an efficient supply chain:

**Plan** – involves a non-recurring process to determine the proper strategies for organizing and managing the supply chain at the system, department or item level

**Price** – the first of five recurring optimization processes, focusing on identifying the accurate price of an item and ensuring it remains correct over time

**Purchase** – focuses on utilizing electronic data interchange (EDI) to optimize transaction speed and to minimize pathway intervention

**Fill** – utilizes fill rates, back orders, and the number of returns to measure the availability and accuracy of products being picked at the supplier

**Receive** – focuses on measuring the accuracy of delivery times, quantity shipped and received, and the efficiency of utilizing EDI to facilitate receipt processing

**Pay** – measures the extent that electronic invoicing

and payment processing, along with discount maximization, are utilized to pay bills in full and on time

The basis for each pillar is a set of actionable metrics, operational best practices and recommended "how to" processes. Each of the five core recurring processes—price, purchase, fill, receive, and pay—has one key metric that represents the best overall performance of that business process. Scores are calculated for each key metric, and the lowest score indicates the area of greatest opportunity for improvement. O&M and DH agreed that price discrepancies were causing an inordinate amount of administrative time and effort to resolve, and needed to be addressed first. Upon closer examination, the partners identified several reasons for the pricing discrepancies:

- Some manufacturers failed to communicate price changes to either party
- DH had no process to recognize and implement planned price changes
- Both parties failed to agree on the catalog of items they bought and sold, so 'specials' and ad hoc purchases happened with no price agreement
- There was no process to flag price discrepancies on a daily basis, thereby allowing the same item to have a discrepancy for an extended period of time

The primary metric for the price pillar is the percentage of prices that match the first time between the purchase order and the invoice. The converse is the error rate, or the percentage of price discrepancies to the total of lines ordered over a given period of time. The methodology to minimize the number of price discrepancies includes:

- Processing and uploading a full price catalog that links the provider's item master with the supplier's item master

- Committing resources from both trading partners and following a 12-step monthly mapping process
- Running a periodic (daily, weekly or monthly) price match between the provider's and supplier's item masters for items ordered
- Minimizing the number of non-stock or special items (items not in the provider's item master) ordered from that supplier
- Daily receiving and resolving discrepancies appearing on each order confirmation

By following this proven process, DH and O&M reduced the number of purchase orders with price discrepancies by 83%, from 387 to 66, in eight months. Accepted industry norms suggest that each partner takes approximately 15 minutes to investigate and resolve each price discrepancy, so the time saved by both organizations has been significant. It has taken a sincere effort by both organizations to do things the right way, as well as transparency and collaboration between the partners, but both organizations have saved much time and money by eliminating administrative irritants and making it easier to do business with each other.

# Detailed Dive

## Henry Schein: An Extension of Denver Health's Supply Chain

Among a wider array of products and services, Henry Schein offers an extensive inventory of dental supplies, dental equipment products and accessories, plus innovative dentistry related services designed to maximize the efficiency and profitability of dental practices. Henry Schein's focus on customer service, their underlying belief system to focus on customers' practices so customers can focus on patients, and their desire to improve made them a good partner candidate with Denver Health. After agreeing to undertake a deeper partnering relationship, representatives from Henry Schein came onsite to observe practices and processes at several of Denver Health's dental clinics. They saw first-hand how products and supplies were being used, and spoke with dentists and dental hygienists about things that were going well and areas in need of improvement. Denver Health supply chain representatives also visited the Henry Schein regional distribution center and jointly created an action plan.

Based on observations and conversations, Henry Schein made a number of recommendations that would make things easier for both Denver Health and themselves. First and foremost, Henry Schein noticed many opportunities to standardize across Denver Health's clinics, and recommended a significant reduction in the number of products and supplies to reduce variability and costs. In fact, Henry Schein helped Denver Health narrow down product offerings from over 4,000 stock keeping units to under 400. To accomplish this, the Henry Schein account rep reviewed each product line item to identify duplication and consolidate to products with excellent quality and good pricing.

For example, Denver Health's dental clinics were using four different brands of patient towels — a different brand at each clinic. With significant communication and encouragement from Henry Schein, the providers across Denver Health's dental clinics agreed to use just one brand. Similar reductions in variability occurred with tooth brushes, dental floss,

and nearly every other product used.

Henry Schein even took a detailed look at the various medications being used at Denver Health's dental clinics. They suggested medications that were less expensive and/or generic to reduce costs. In one instance, several different brands of Xylocaine were being used across the clinics. Henry Schein took information to the providers as well as proof that their generic/house brand (called Lidocaine) not only used the same active ingredient, but was actually made by the same manufacturer as the more expensive name brand. This change saved Denver Health more than \$8,000.

Based on the lower number of products and supplies Denver Health began using across their dental clinics, Henry Schein changed their own warehousing system to ensure all items would be available in Denver when needed. They also adjusted delivery schedules to reduce the dental supply inventory Denver Health would need to carry at any given time. Furthermore, Henry Schein created a buying program for Denver Health so they could get even better pricing from vendors, who would be selling higher volumes of their products.

As positive results were being realized from the collaborative work, Denver Health consolidated more of its dental supply business to Henry Schein, thereby increasing overall spend with them. During the course of the nearly two-year partnership thus far, Henry Schein has become an extension of Denver Health's supply chain as well as a key partner in Denver Health's ability to successfully serve the needs of the community. These partners meet on a monthly basis to ensure the right products are being delivered on time and that no problems or back orders are occurring. They also discuss how to overcome the personalities, past experiences, and preferences of the dental providers so as to consolidate even more. Further refining their joint inventory system and tackling other issues are on the table as next steps.

# Detailed Dive LaserCycleUSA: Sole Supplier for Printing

Although LaserCycleUSA originated in Denver, they have a regional footprint as an authorized reseller of ultra-reliable printers and copiers and provide expert repair and service for all major brands of copiers, printers and multifunction devices. They also offer electronic document software solutions that eliminate printing altogether while enabling an organization's employees to securely access needed documents. As long-time practitioners of continual improvement, LaserCycleUSA understands that finding the best document management solution for an organization means reducing costs without sacrificing access to information. Like Denver Health, they also believe that business success and environmental responsibility work hand in hand, so their solutions always maintain a focus on sustainability.

Recognizing LaserCycleUSA's commitment to finding solutions that were right for its customers, and given their boutique and highly customizable level of customer care, Denver Health approached LaserCycleUSA with a request to develop a deeper partnering relationship. After coming onsite and evaluating Denver Health's use of copiers, printers and multifunction devices, LaserCycleUSA could see the big picture of how the organization produced documents and knew there were opportunities for Denver Health to reduce and stabilize printing expenditures. LaserCycleUSA proposed a number of changes that would fundamentally change printing within Denver Health. The most profound change was the standardization of devices across Denver Health through LaserCycleUSA's Managed Print Services (MPS) program. This resulted in Denver Health having fewer, more standardized printing devices within the hospital and clinics, as well as allocating their use more intelligently. This was accompanied by a recommendation to reduce the replacement cycle for printers from 100% each year to 25%. LaserCycleUSA also began providing remote maintenance and repairs, and worked tirelessly to ensure that technicians and service calls integrated seamlessly with Denver Health's IT Help Desk.

Denver Health not only benefitted from the standardized devices and ongoing maintenance, they also enjoyed the simplicity of having equipment, consumables and maintenance all rolled into one low price-per-page that was easy to monitor. The cost reductions from these moves were immediate and measurable. As just one example, Denver Health saved \$500,000 in the first year by simply extending the use of under-utilized copiers. Denver Health also benefitted by having less wasted paper, less toner used, and lowered electrical usage. And LaserCycleUSA benefitted by becoming Denver Health's sole supplier for printing services.

But the partnership didn't end there. LaserCycleUSA saw other opportunities for Denver Health to reduce costs. LaserCycleUSA worked with Denver Health to minimize the use of color printing and copying, a frequently unnecessary (and very large!) expense. They found that the default settings on many of Denver Health's computers were set to print using color rather than black-and-white, and that many staff were not aware how much more expensive color printing was. LaserCycleUSA worked with Denver Health's IT Department to reset computers so they defaulted to black-and-white printing. LaserCycleUSA also prepared signs to be placed near each color printer that politely asked users if color printing was necessary, and reminded them that color printing was more than ten times as expensive as black-and-white. These changes resulted in a dramatic reduction in color printing along with tremendous cost savings.

LaserCycleUSA also helped Denver Health in two other areas of printing and image management: the creation of staff ID badges and the use of scanners. LaserCycleUSA's recommendations eliminated common problems with staff ID badges (bowing/bending and smearing) and provided newer technology, less service consumables, on-site response personnel, and appropriately sized equipment to better meet Denver Health's scanning needs. By updating and

right-sizing their scanners, Denver Health was able to realize a per station savings of 67% on hardware, 48% on annual service, and 75% on consumables.

To top it all off, LaserCycleUSA brought decades of experience and innovation in recycling and remanufacturing laser toner cartridges that has added to Denver Health's financial savings while also reducing the landfill waste and carbon footprint associated with new cartridge manufacturing. In this partnership, sustainability goes beyond "going green." With LaserCycleUSA's help, Denver Health now has a strategic approach to digital and printed document production, storage, and distribution that puts documents into the hands of the people who need them while reducing paper and energy consumption. The result is lower printing costs as well as achievement of Denver Health's sustainability objectives.

## About the Author

With more than 20 years of experience helping organizations align and improve their personnel and technical systems to accomplish strategic business objectives, Aaron, a senior consulting director with Healthcare Performance Partners, a Vizient Company, has consulted with leading healthcare organizations across the country, including The Everett Clinic, Henry Ford Health System, Inova Health System, Maimonides Medical Center, University of Texas Medical Branch, the Westchester Medical Center, and many others. He has proven success guiding organizations through strategically driven changes and enhancing business performance, and has significant experience in needs assessment, best practice analysis, performance measurement, process improvement, and behavioral change management.

Aaron also has extensive experience in the implementation of workforce management solutions to reduce costs, as well as in coaching executives in various implementation strategies.

Prior to joining HPP, Aaron worked for Kronos, Aetna, and Executive Learning in support of various change management, organizational development, workforce management, and process improvement initiatives.

He holds a Ph.D. in Industrial and Organizational Psychology from the University of Tennessee with a minor in Industrial Engineering.